Human milk oligosaccharides

Guo, Yao

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Human milk oligosaccharides (HMOs) are the third most abundant component (5-10 g/l) in human milk. Approximately 200 distinct complex oligosaccharides have been identified in human milk. The structural diversity and complexity confer unique biological functions on HMOs, e.g. protection of infants against infections and diarrhea, and influence on brain development and cognition capability. Only trace amounts of these oligosaccharides are present in bovine milk-based infant formula. Attempt has been made to mimic these HMOs using inexpensive alternatives, i.e. galactooligosaccharides (GOS), fructooligosaccharides (FOS) and inulin. While they possibly have prebiotic effects, the fact that many of the traits of HMOs are structurally specific renders them unlikely to mimic HMOs. In order to synthesize genuine HMOs, this project aims to develop an enzymatic process capable of converting certain kinds of food materials into the desired products.